THE DISCOVERY & MAPPING OF THE GREAT LAKES 'SWEET-WATER' 1522 - 1703

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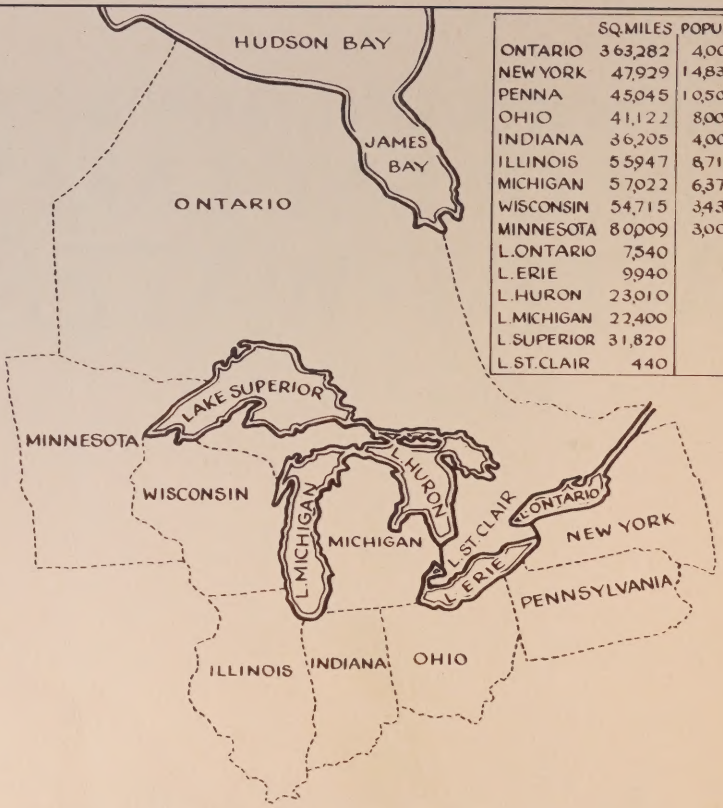
ERRATA

page 4, line 5, for 'Munk' read 'Monck'
page 4, line 9, for '1525' read '1535'
page 4, line 25, for '1665' read '1565'
page 4, line 27, for Ortelius Maffei, read 'Ortelius, Maffei,'
page 4, line 27, for 'Wytfleet' read 'Wytfliet'
page 6, line 27, for 'Van der Wort' read 'Van der Nort'
page 6, line 41, for '1686' read '1688'
page 7, line 9, for 'reqard' read 'reward'
page 7, add to list '1953 Skelton, R. A. Old Decorative Maps and Charts'
page 8, line 27, for 'representations' read 'representation'
page 9, line 29, for 'Wytfleet' read 'Wytfliet'
page 11, line 23, for 'region, and' read 'region and'
page 11, line 24, for 'placed' read 'place'
page 11, line 47, for 'Paramous' read 'Paramour'

THE DISCOVERY & MAPPING OF THE GREAT LAKES 'SWEET-WATER' 1522-1703

An Exhibition held at
The Royal Ontario Museum
March, 1954



	SQ. MILES	POPULATION
ONTARIO	363,282	4,000,000
NEW YORK	47,929	14,830,000
PENNA	45,045	10,500,000
OHIO	41,122	8,000,000
INDIANA	36,205	4,000,000
ILLINOIS	55,947	8,712,000
MICHIGAN	57,022	6,371,000
WISCONSIN	54,715	3,434,000
MINNESOTA	80,009	3,000,000
L. ONTARIO	7,540	
L. ERIE	9,940	
L. HURON	23,010	
L. MICHIGAN	22,400	
L. SUPERIOR	31,820	
L. ST. CLAIR	440	

GREAT LAKE REGION

AREA & POPULATION

PREFATORY NOTE

This book is issued in connection with the exhibition "Sweet Water: Great Lakes, Discovery and Mapping", being mounted in the Museum in March 1954. This is an exhibition of maps produced between 1522 and 1703, showing how the White Man's knowledge of the Great Lakes increased during those years. They form part of the specialised collection of Dr. Alexander E. MacDonald of Toronto, now probably the largest of its kind. Other parts of his collection are devoted to: a) the discovery of the Mid West; b) boundaries of the Provinces of Canada, showing their changes; c) discoveries along the West Coast; d) place names in Ontario after 1703. This introduction and the accompanying notes are the work of Dr. MacDonald himself; the Museum is most grateful to him for writing them, for lending the maps for the exhibition, and for much other very generous help.

The colour photograph and half-tone illustrations in this book were supplied by the MacLean-Hunter Publishing Company. The Museum is glad to express its gratitude for these.

GERARD BRETT
Director.

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PURPOSE OF THE EXHIBITION

The Province of Ontario shares the Great Lakes with New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Wisconsin and Minnesota, eight important American States. Today this great waterway promises to unite our interests in world trade, but before the development of railways the lakes served as our means of communication. Historically they formed the pathway to a vast continental void, the exploration of which extended over nearly two hundred years. The purpose of this exhibition is to unfold, by means of original maps of the period, the step-by-step discoveries of the many famous men who played a part in making known this region, which seems destined to become a centre of civilisation.

Our Province links together two areas, each the scene of great adventure. Among the great exploits of all time there are two which concern Ontario, the search for the Northwest Passage and the exploration of the Great Lakes.

The exhibition presents a cartographic record of the years from 1522 to 1703, a period important in shaping the development of our continent.

Map making has a recorded story almost as old as civilisation itself; Babylonian, Egyptian, Greek, Arabian, Chinese and Aztec maps are still in existence. Among these are a Babylonian surveyor's map of a field, on an inscribed clay tablet, dated to about 2000 B.C., and an Egyptian map of a gold mine, on papyrus, dated to about 1300 B.C. These early maps dealt with localities, and it was the Egyptian Ptolemy, in A.D. 160, who first attempted to delineate the world as a sphere. He introduced latitude and longitude and other basic ideas of charting still in use. His geography, in eight volumes, is built so well on the knowledge of his time that it endured unchanged for thirteen centuries, and after being revised and republished, for longer even than that.

Some maps are famous - among them a fifth century map of the world on stone, now in the British Museum, and the thirteenth century Hereford Cathedral Mappamundi. The Leardo fifteenth century map is treasured by the American Geographical Society for its artistic beauty as well as for its historical importance. Other single maps of the Middle Ages are less well known, as are the globes and celestial charts of the period.

Seafaring nations developed the craft by the making of portolano maps (charts for the use of sailors). With the rise of great powers through supremacy on water, charts gradually became more accurate. The compass, improved in the thirteenth and fourteenth centuries with the astronomical knowledge of the time, permitted voyages to distant lands. This growing urge to explore was also stimulated by the republication of Ptolemy's Geography in 1460. Its success was immediate, and nearly fifty editions followed. These appeared from time to time in different countries and vary greatly in beauty of execution and factual representation, since many famous cartographers added the knowledge of their time to it.

The Ptolemy woodcuts of 1522, 1540, 1550 and 1574 in this exhibition show well the development both in knowledge and in decoration. Plates for the 1548 edition were engraved on copper, a method first used for the plates of the three late editions of the fifteenth century.

In the early years after the discovery of America, charts were carefully guarded, and could be obtained only by treachery, plunder, or as spoils of war. Records of royal permits to sail to the New World, without expense to the court, are still preserved, but they were granted in consideration of a liberal share of the proceeds of the venture. Following such arrangements the latest map was copied and given for the purpose of the voyage, and was to be guarded above life itself. So the modern distribution of tourist maps has a precedent from history, but with no strings attached, other than a certain implied hope!

Officially approved voyages were made to the New World by Colum-

bus, Cabot, Gomez, Verrazano and many others; but the activity of fishermen can only be imagined from chance reports of the times, which suggest that trips were numerous, and may have preceded recorded crossings.

It is of interest that the first appearance of the name America was on a 1507 map by Waldseęmüller. The only existing copy of this was discovered in 1901. Juan de la Cosa, pilot for Christopher Columbus, made the first manuscript map of the discovery of the West Indies, while Matteo Contarini engraved the first printed map of the New World, the only known copy of which is now treasured in the British Museum. Other maps described in the literature have yet to be found, if indeed they still exist.

The decorative maps of the sixteenth and seventeenth centuries have beautifully executed borders, cartouches to enclose the title of the map, fantastic monsters on land and sea, vignettes of ports, peoples, customs and native occupations that vary with the country of origin and the artist.

Other details include "wind" and "death" heads. Compass-roses indicate direction, while flags, stockades and portraits of explorers, and other devices, heightened by colour, gold, and silver adorn areas for which geographic information was often wanting.

By comparing the appearance of these areas in maps of different dates it should be possible to recapture the spirit of the age of discovery. We study the progress of bygone efforts to solve a gigantic jig-saw puzzle without the aid of modern instruments and technical skills.

Measurement of position north and south depended in the sixteenth century on the astrolabe, and latitudes were accurately recorded. Longitude estimation had to wait for the chronometer, so that navigators did well to chart the relative position of their landfalls by dead reckoning. However, Vespucci observed near Panama, on the 23rd of August 1499, from tables for the conjunction of the moon and Mars, that his longitude position was five and a half hours from Cadiz in Spain.

As adventurers proceeded inland from every coast of America the explorer's original sketch and notes dealt with one or two years of work, but it required the craftsmanship of the cartographer to translate this information to wood or copper and to fit it into pictures of other discoveries. It is to be remembered that barter, trade and privilege grants overshadowed the problems of mapping, but any falling off in the supply of furs and gold was the incentive to explore new regions.

NORTH WEST PASSAGE

Elizabethan exploration in the search for a passage to the Spice Lands of the East was pursued with the vigour that marked this reign. The her-

oic efforts of Frobisher and Davis discovered the northern way to Ontario. The famous Hudson, 1610-11, and Button in 1612-13, were the first to winter in Hudson's Bay. Hudson died here, probably in Ontario, with his son and the ship's carpenter, when they were set adrift in an open boat by a mutinous crew. Baffin, Munk, Fox, James and many others continued the search for the Northwest Passage without success. It was not until 1907 that Amundsen, in the Gjöa, finally proved the existence of the channel and demonstrated its impracticability for shipping.

THE DISCOVERY OF THE GREAT LAKES

Cartier, in 1525, learned from the Indians of Stadacona about "a great body of sweet-water, the bounds of which are unknown", and reported its existence to the Old World. For nearly a hundred years this report caused much speculation, and the body of water was placed by fancy on maps of North America, under various names: Lago Conibas, Mare Dulce, Iroquois, Tadenac, Grand Lac, or as "massed water extending for thirty voyages by canoe".

Although Cabot in 1497 was the first to set foot on the mainland of the New World, his discovery was overshadowed by the fame of Columbus and Vespucci. Thus maps of the sixteenth century show that Central and South America were well known when Canada was called Baccalearum, or Cortereales. The history and maps of this period show many interesting discrepancies. As late as 1543 Solinus placed the New World as "Terra Incognita" beyond the Pacific Ocean, but only three years later the portolano chart of Descaliers showed Canada along the St. Lawrence River. The term Canada had probably long been in use. Its early use on an engraved map is here shown with an example made by Bertelli in 1665. He placed Canada above an unnamed river flowing to the Gamas region. Canada is also mapped by Ortelius Maffei, Rumbold Mercator and Wytfleet, and the St. Lawrence is named.

The sixteenth century was marked by the success of the Spanish in the south as they extended their discovery along the Pacific Ocean. In the north the English reached the approaches to Hudson's Bay. Early in the seventeenth century the Dutch bought Manhattan for gifts costing sixty guilders (about $24.00), and in 1638 Sweden had placed settlers on the Delaware River. Even in the north the English search for the Northwest Passage encountered Dutch enterprise, as all the world powers sought their share of trade with the New World.

The French were alarmed by these encroachments, and were spurred into action to maintain a profitable fur trade and to increase their influence along the upper St. Lawrence, and lakes known only to the Indians. It is not known when Champlain first heard of the exploits of the English

and their efforts to find the Northwest Passage, but we know that he prepared carefully for his own attempt, which he made by way of the less arduous river route. In 1613 he returned to Canada and went up the Ottawa River with Vignau. During this expedition he lost his astrolabe, and discouraged by false reports and hardships, he decided to return to Quebec, and then to France. The extent of his voyage is known through the finding, in 1889, of the astrolabe by a farmer at Muskrat Lake, near Pembroke.

In 1615 Champlain renewed his efforts to penetrate the unknown wilds, and his party, which included Brule and Le Caron, reached Georgian Bay. There is some debate as to whether Champlain or Le Caron was the first to gaze on the long sought "sweet water". In the same year Lake Ontario was crossed near the Thousand Islands; Champlain returned again to Quebec, wounded in a battle with the Indians in the Iroquois country. This unfortunate war with a fierce tribe closed the southern route to the French and later resulted in the destruction of the friendly Hurons.

Forced to the northern route by way of the Ottawa River, Brule in 1622 discovered Lake Superior, but Radisson and Groseilliers were the first to cross it in 1658-60. In 1634 Nicolet entered Lake Michigan by the Straits of Mackinaw. Lake Erie was the last of the Great Lakes to be discovered. Near Hamilton, in 1669, Joliet met La Salle, Gallinee and Dollier de Casson. It is recorded that Joliet had entered Lake Erie from Lake Huron by way of the St. Clair, and to avoid the Iroquois had then followed the Grand River. He provided maps and help to La Salle, whose party then split up. La Salle himself went in search of the Mississippi, while Gallinee and Le Caron wintered on Lake Erie. It was not until Joliet's chart of 1674 that the Lakes were placed in their approximate relationship, and for long after this strange delineations of them were common.

Joliet lost his sketches in 1670 when his canoe overturned near Montreal, but he was able to replace them from memory with sketches that are preserved at the John Carter Brown Library in Providence. They show the Great Lakes closed at the western part, and soon this information is reflected in the outstanding Coronelli map of 1688. Coloured and decorated, it was printed for wide distribution, and contained the new information which appealed to the public, who demanded much of an art that was increasingly competitive.

POINTS OF SPECIAL INTEREST

These maps are now being shown in public for the first time. Since they form part of a single collection, imagination must bridge the gaps in their recording of our new country's voluminous history. Brief notes on each map in the exhibition will be found below. There are doubtless some

errors in dating that will be corrected when single maps are compared with similar examples in dated atlases.

There is also a lag between discovery and mapping which is more apparent in maps of foreign origin. However, as history and cartography go hand in hand, a visual review of the discovery of our region will, it is hoped, be of interest. Many old maps have disappeared, and are known only by written description. Single copies of other maps, such as those by Joliet and Raffeix, are the treasured possessions of the great libraries, but they are well known from photographs and published description. Cartography still flourishes as a useful art, and air travel has revived interest in sub-polar geography.

For the student of cartography a comparison of old and later maps reveals many errors of local interest. For example, Visscher in 1690 placed southern Ontario in Pennsylvania. Other charts show Canada extending to Louisiana and vice versa, frequently rivers and lakes were distorted, misplaced or ignored long after better knowledge was available. This came from such works as the "Jesuit Relations", fifty printed volumes on New World history, beginning in 1632.

Other special regions are of interest cartographically; in the New World the West Indies, Peru, Florida, Virginia and New England have held the interest of the public and of the mapmakers. Charts have appeared through the centuries to illustrate graphically volcanoes (Sanson), sea currents (Kircher), magnetic variation of the compass (Halley), distribution of fauna, flora, races, religions, trade winds, etc. Some of the maps shown here present special points of interest, such as the following:

1. The track of the circumnavigators on early world maps - Magellan (1519-20), Drake (1577-80), Cavendish (1586-88), Van der Wort (1598-1601).

2. Portraits of explorers or cartographers, local scenes or customs, occupations, etc shown on the borders.

3. Before boundaries appeared regions were vaguely designated by the names of Indian tribes, forts, missions or portages.

4. The many variations used in naming regions, places or lakes and rivers resulted from language difficulties. However, they still hold our interest, especially for those areas we know well. For example, Lake Ontario has appeared on these maps as "St. Louis", "Iroquois", "Contenant", "Grand Lac", "Frontenac", and finally under its present name. The name Toronto has a history that has occupied the attention of many writers. Through the years it has been used on maps to indicate lakes, habitations, bays and regions to the north and east of its present location. On the maps here exhibited it first appeared as Tarantou, on the 1656 work of a Cartographer Royal of France, Nicolas Sanson. In 1686 Taranto appears on Lake Simcoe, so placed by Coronelli, an Italian cartographer. Teyoyagon or Teiaiagon, with many different spellings, was frequently

used until 1794, although Fort Toronto appears in 1755 on maps by Vaugondy and Bellin and others. The more modern name "York" is outside the scope of this exhibition.

SUMMARY

A heritage of adventure flows in the veins of the millions who now live in the vast and thickly populated region of the Great Lakes. Nature still holds a charm for youth in camping by a fire or travelling by canoe. In later life space, depth, industrial production, research in many fields of investigation provide new worlds to be conquered. As in the past, the road is the reqard that lures us on, confident in our ability to overcome danger, endure hardship and adapt the new to our aid.

The serious student is referred to the following books:-

1872	Harrisse, H.	Discovery of America
1884	Winsor, Justin	Narrative and Critical History of America
1889	Nordenskiöld, A. E.	Facsimile Atlas
1897	Nordenskiöld, A. E.	Periplus
1909-20	Library of Congress	List of Geographical Atlases, 4 vols.
1926	Article "Maps" in Encyclopaedia Britannica, 13th edition	
1926	Freeman and Fite	A Book of Old Maps Delineating America
1933	Robinson, Percy	Toronto during the French Regime
1951	Bagrow, Leo	Geschichte der Kartographie
1952	Walters Art Gallery, Baltimore	The World Encompassed
1952	Tooley, R. V.	Maps and Map Makers, 2nd edition
1953	Lynam, Edward	The Map Maker's Art

The map on the cover is part of the 1540 MUNSTER:
LA TABLE DES ISLES NEUFVES.

1543 APIAN: CHARTA COSMOGRAPHICA

For the purposes of this exhibition the information available at the time each map was made is considered most important, and is stressed in this list. Dates therefore appear as printed on the map, although the exhibited map may have come from a later edition.

1522 PTOLEMY by Frisius. TABULA TOTIUS ORBIS. This was long considered to show the first printed use of the word "America". This particular copy, of which the title-page is shown, came from the 1535 Servetus edition, and was later copied by Mercator. Two of the West Indies are named, but no northern parts are shown on 360 degrees of longitude. (Nordenskiöld, Atlas, page 90, Pl. XVI).

1535 FINE (fragment). The New World half of a double cordiform (heart-shaped) projection shows only BACCALAR ("Land of Cod"). The mythical four large islands surround the north polar region. The cordiform projection was first used by Waldseemüller.

1540 MUNSTER (from the edition of Ptolemy). LA TABLE DES ISLES NEUFVES LESQUELLES ON APPELE ISLES D'OCCIDENT & D'INDIES. It shows the newly-discovered parts of Canada as "Francisca" and Cape Breton; Newfoundland is called CORTERATI and Labrador BACALHOS.

1543 SOLINI. This photostat is of a bound-in map from the "Polyhistor" which was printed in Basel. Even at this date a well known mapmaker showed the New World as "Terra Incognita" beyond the Pacific Ocean. It was a reprint of the 1538 edition. Atlas shown. (Nordenskiöld, Atlas, Page 108).

1545 APIAN. CHARTA COSMOGRAPHICA. A rare cordiform world map, quite different from his 1530 cut, which did not place a name on North America. here it is called BACCALEARUM ("Land of Cod"). The southern New World is well done, and shows Magellan's Straits.

1550 MUNSTER. TYPUS ORBIS UNIVERSALIS. World map with wind-heads. Florida and the "Cortereal" discoveries of the coast of Canada are indicated.

1565 BERTELI. The Atlantic coast; probably one of the earliest printed maps to show "Canada" and representations of the Great Lakes, shown as "Lago" in New France. The St. Lawrence is shown. Fastidious restraint and knowledge of new discoveries mark this work of Italian cartography at its best, done from engraving on copper plates. From this time on woodcuts become increasingly rare. Formerly in the collection of the Duke of Gotha.

1570 PORCACCHI. Pair of small maps showing "Lago" and a river flowing to Cape Rosso.

1570 ORTELIUS. AMERICAE SIVE NOVA ORBIS. On this world map Canada appears above the St. Lawrence, which extends beyond Hochelaga to a region named Chilaga. A later copy shows South America without the bulge.

1571 MONTANUS. SACRAE GEOGRAPHIAE TABULUM. World maps showing races. An early chart with symbols and accompanying table.

1572 MUNSTER. DIE ERST GENERAL TAFEL. World map showing New France and the Northwest Passage extending to the Anian region.

1574 PTOLEMY. CARTA MARINA NUOVA TAVOLA. North America is presented on a world map as joined to Asia; the north-east coast is called "Green Mountains". The pattern of rhumb lines is interesting.

1574 PTOLEMY. ORBIS DESCRIPTIO. Companion world map in the same edition. "Tanorade Land" is shown where Canada now is.

1585 ORTELIUS. MARIS PACIFICI. A map showing the Pacific Ocean, following Drake's circumnavigation. Magellan's ship the Victoria appears off the coast of Australia. North and South America are named.

1587 MERCATOR (Rumbold, son of the great Gerard Mercator). "Mare Dulce" appears in New France with Canada, the Saguenay and Hochelaga along the St. Lawrence, which extends well across the continent. An open Northwest Passage extends to the Anian region.

1589 de JODE. TOTIUS ORBIS COGNITI UNIVERSALIS DESCRIPTIO. "Mare Dulce" is shown in the north on a Mercator-like projection of the world. The Northwest Passage extends to the Anian region. Canada appears on the St. Lawrence. Rivalry existed between Mercator and de Jode, each using the other's work without giving credit.

1589 MAFFEI. INDIARUM ORIENTALIUM OCCIDENTALIUMQUE DESCRIPTIO. World map showing Canada. No Great Lakes, but the St. Lawrence region and the design are similar to the work of Rumbold Mercator.

1593 de JODE. HEMISPHERIU AB AEQUINOCTIALI LINEA, AD CIRCULU POLI ARCTICI. Polar world projection; his northern part of Canada was copied by Mercator. California, separated from Asia, appears within the Arctic circle. Lake Conibas is shown, also New France, Newfoundland and Labrador, more fully than on any other map before this date.

1595 MERCATOR. SEPTENTRIONALIUM TERRARUM DESCRIPTIO. This interesting polar projection, to 60 degrees latitude, shows the open Northwest Passage. Four islands surround the North Pole, which is placed on top of a black rock. The Great Lakes are shown flowing north from "a great body of sweet water, the limits of which are not known to the Indians of Stadacona". Lake Conibas and three other communicating bodies of water appear in Canada, which is not named.

1595 MERCATOR. VIRGINIAE ITEM ET FLORIDAE. On a map of Virginia two imaginary lakes with "Niagara Falls" are shown in the "Apalatcy" mountains.

1596 BOTERO. TYPUS ORBIS TERRARUM. Similar to other world maps of the period. Probably after Mercator, as his name appears in the cartouche.

1596 de BRY. AMERICA SIVE NOVUS ORBIS RESPECTU EUROPAEORUM INFERIOR. This adds little to the knowledge presented in other world maps of the period. His portraits of the navigators Columbus, Magellan, Vespucci and Pisard, with added compass and sailing ship, appear in the border.

1596 de BRY. AMERICAE RETECTIO. The New World shown on a sphere, America placed in the southern hemisphere. Vignette border shows Old World cities.

1597 WYTFLEET. NOVA FRANCIA ET CANADA. The first map devoted to Canada in the first atlas to appear for the New World; the word "Atlas", meaning a book of maps, was originally used by Rumbold Mercator, although it was chosen by Gerard Mercator before his death in 1594 (see Walters Art Gallery maps, No. 134). It summarises all the known geographic facts of the time.

1598 (circa) ROSARIO. This rare map of the four parts of the world, one of them entitled "America", is signed "Giuseppe Rosario", but reference to it is not found in Kohl, Nordenskiöld, nor in the Library of Congress works.

1602 HONDIUS-le CLERC. ORBIS TERRAE NOVISSIMA DESCRIPTIO. "Mare Dulce", or the mythical body of sweet water, still flows into the Northwest Passage, but an indication of the Ottawa River is found arising in a lake of lesser extent, possibly the first indication of Lake Nipissing, and the route that was to be followed by Champlain in his search for a passage to the Indies.

1606 BLAEU. NOVA TOTIUS TERRARUM ORBIS GEOGRAPHICA AC HYDROGRAPHICA TABULA. Gul. Janssonio is the signature on this first of the "Seven Wonders" maps of the world. To avoid confusion with Jansson, son-in-law of his rival Hondius, he changed his name to Blaeu on later charts. The broken-up lakes of Canada appeared for fifty years after this.

1611 BOTERO. NOVI ORBIS PARS BOREALIS. On this polar projection of America a Northwest Passage is shown, and "sweet water" without limit is shown as Lago Conibas. The footnote refers to the exploits of Columbus, Vespucci, Raleigh and Verrazano.

1621 KAERIUS. NOVA TOTIUS TERRARUM ORBIS GEOGRAPHICA AC HYDROGRAPHICA TABULA. This version of the "Seven Wonders" map of 1606 by Blaeu (see above) shows little change.

1627 SPEED. A NEW AND ACCURAT MAP OF THE WORLD. The new discoveries of Hudson and Button appearing on an English chart; it also contains information resulting from Elizabethan maritime activity.

1630 HONDIUS. NOVA TOTIUS TERRARUM ORBIS GEOGRAPHICA AC HYDROGRAPHICA TABULA. A world map that was probably reissued, as his 1631 chart (see below) shows Lake Ontario.

1630 de LAET. AMERICA SIVE INDIAE OCCIDENTALIS. Facts, not fancy, mark the modern appearance of this map.

1631 HONDIUS. AMERICA SEPTENTRIONALIS. Map of North America scattered with notes and quaint wild life. Lake Ontario, called Iroquois, is correctly located; the Laurentian hills extend to the Niagara region. This chart, found in Paris in 1921, was to start the collection now being shown for the first time.

1635 HONDIUS. NOVA TOTIUS TERRARUM ORBIS GEOGRAPHICA AC HYDROGRAPHICA TABULA. This original leather-bound copy of the first English edition of Mercator contains:- page 19, map of North and South America, named, with the St. Lawrence extending to Granada. Davis Strait, but no Great Lakes, appears. Page 891, the West Indies are well drawn. Page 880, separate maps for Cuba, Hispaniola and Jamaica. Page 899, map of Virginia and Florida, with fanciful Great Lakes and Niagara. Maps of Bermuda, New Spain, Peru, South and Central America, and Magellan Straits follow. Following page 930 is Smith's tenth-state map of New England, as called for in the index.

1635 SMITH (photostat of the above). NEW ENGLAND, STATE X. Bound-in copy of a New England map from the first English edition of Mercator.

1636 HONDIUS. POLI ARCTICI. This map of the Arctic regions shows many place names on Hudson's Bay. Vignettes appear on the border to illustrate the profitable whaling activities. A small gap is hopefully left open on the coast line of Baffin's Bay, but Mercator's north polar ideas are omitted.

1636 (circa) JANSSON. NOVA ANGLIA, NOVUM BELGIUM ET VIRGINIA. New England extends to Lac des Iroquois (Ontario) and to Grand Lac.

1638 PISCATOR. ORBIS TERRARUM TYPIS DE INTEGRO MULTIS IN LOCIS EMENDATUS. A decorative early world map by this author, who later changed his name to Visscher; it is signed by Goos. This was formerly in F. C. Wieder's collection.

1645 BLAEU. VIRGINIAE PARTIS AUSTRALIS ET FLORIDAE PARTIS ORIENTALIS. Two of the Great Lakes are shown on this map of Virginia.

1648 BLAEU. NOVA BELGICA ET ANGLIA NOVA. Hudson's Bay shown on a polar chart, with passage left open at the west.

1650 SANSON. AMERIQUE SEPTENTRIONALE. Map of North America. The Great Lakes are left open at their western end. The names of some Indian tribes appear.

1656 SANSON. LE CANADA OU NOUVELLE FRANCE. Map of New France. As in the 1650 map, the Great Lakes are left open. The location of some Indian tribes appear, and for the first time "Tarantou" is found along the Ottawa River.

1660 ANONYMOUS. NOVISSIMA TOTIUS TARRARUM ORBIS. Coloured map of the New World.

1660 du VAL. TYPUS ORBIS TERRARUM. Small world map shows Davis Strait and the St. Lawrence, without any lakes.

1660 du VAL. LE PLANISPHAERE AUTREMENT LA CARTE DU MONDE TERRESTRE. Map of the world. Follows Sanson for the Great Lakes, and indicates climate.

1662 BLAEU. NOVA BELGICA ET ANGLIA NOVA. Reversed map of New England and details of wild life.

1665 KIRSCHER. TABULA GEOGRAPHICO-HYDROGRAPHICA. Probably the first delineation of ocean currents. Volcanoes and ocean "holes" are indicated.

1668 SANSON. Curious map of the world, with massed Great Lakes.

1669 CHAMPLAIN. CARTE DE LA NOUVELLE FRANCE. Reworked by de Fer, it attempts to indicate the new discoveries along the Great Lakes, and shows Lac de Rie above Niagara Falls.

1670 THORNTON AND SELLER. A NEW CHART FOR THE SEACOASTS OF NEW-FOUNDLAND, NEW SCOTLAND, NEW ENGLAND, NEW JARSEY, VIRGINIA AND MARYLAND. Champlain's route is indicated, leading to an unnamed lake. The southern waterway from Lake Louis (Ontario) is shown.

1671 OGILBY. NOVI BELGII QUOD NUNC NOVI JORCK VOCATUR, NOVAE ANGLIAE & PARTIS VIRGINIAE. Map of "New Belgium"; distorted Great Lakes shown. Lake Iroquois (Ontario) misplaced on Lake Champlain.

1676 VAN LOON. ORBIS TERRARUM NOVA ET ACCURATISSIMA TABULA. Map dedicated to Charles II. It adds little new information.

1680 de WIT. NOVA ORBIS TABULA IN LUCEM EDITA. Massed Great Lakes on a world map.

1680 PITT. NOVA TOTIUS TERRARUM ORBIS GEOGRAPHICA. World map; English edition of the "Seven Wonders" map. It is dedicated to the Bishop of Oxford. Shows broken Great Lakes.

1684 MICHAULT. COSTES ET RIVIERES DE VIRGINIE, DE MARYLAND ET DE NOUVELLE ANGLETERRE. Sketch shows Champlain's route to the north of Lake Herekoys (Ontario).

1683 (circa) VISSCHER AND SCHENK. CARTE DE LA NOUVELLE FRANCE. Map of north-east coast. Lake Ontario is separated into two large parts, and is located in Pennsylvania, which includes Northern Ontario. "Tarantou" appears as a region, and placed on Lake Nipissing.

1686 MALLET. CANADA OU NOUVELLE FRANCE. This map shows the Great Lakes and Hudson's Strait in the manner of Sanson.

1688 CORONELLI. PARTI OCCIDENTALE DU CANADA OU DE LA NOUVELLE FRANCE. Map of Canada, the Great Lakes completed with alternative names. Lake Taranto is shown flowing into Georgian Bay. This is the earliest use of the term Taranto (see 1656).

1690 DANCKERTS. NOVA TOTIUS TERRARUM ORBIS TABULA. World map, showing massed Great Lakes.

1693 MORTIER. CANADA OU NOUVELLE FRANCE. Map of Canada showing trading posts between Lakes and Hudson's Bay. Lac Taranto appears near Georgian Bay.

1693 (circa) VISSCHER. CARTE DE LA NOUVELLE FRANCE. Map of New France showing Great Lakes and plan of Quebec City.

1695 VAN KEULEN. AMERICAM UTRAMQUE. New World map showing massed lakes beyond Lake Ontario. Hontaguenay appears at the site of Toronto.

1696 JAILLOT. LE CANADA OU PARTIE DE LA NOUVELLE FRANCE. Map of Canada showing the Ottawa route and posts between the Lakes and Hudson's Bay. Jaillot is known for the beauty of his maps.

1700 WELLS. WORLD MAP World map showing no Great Lakes.

1700 WELLS. A NEW MAP OF NORTH AMERICA, dedicated to the Duke of Gloucester. North America with Great Lakes and Ottawa River extending to Hudson's Bay.

1700 (circa) THORNTON. English world map using the Mercator or Edward Wright projection. Dedicated to Sir James Hayes.

1701 HALLEY. TABULA NAUTICA. A sea chart of the whole world showing the changing magnetic variations, issued after his two-year cruise in the "Paramous". This is the earliest use of isogonic lines to show equal variation.

1702 MORTIER. LE CANADA OU PARTIE DE LA NOUVELLE FRANCE ET LABRADOR ET LES ISLES. The Great Lakes are shown, with Hudson's Bay Company posts.

1703 de l'ISLE. CARTE DU CANADA OU DE LA NOUVELLE FRANCE. Map of Canada showing the complete Great Lakes and the region between them and Hudson's Bay.

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